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The Effect of Maternal Quality of Instruction and Support of Development

on Toddler's Mastery Motivation

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**Abstract**

The development of mastery behavior is important because motivation is essential for learning. Previous research has concentrated on motivation in school-age children, but less work has been done on understanding the development of mastery behavior in young children. This study examined the effect of maternal affect (facial and verbal tone) and sensitivity (supportive presence, quality of assistance, and support of development) during a teaching task on toddler persistence during independent task engagement. Toddlers (20 months old) and their parents (N=92) participated in a teaching task in which each parent taught the toddler how to use a difficult toy, then the child engaged with the toy independently. Although, neither aspect of maternal affect during teaching was significantly related to persistence, two aspects of maternal sensitivity—maternal quality of assistance and maternal support of development—were found to be significant predictors of child persistence during independent task engagement. Findings suggest that providing the appropriate level of assistance and keeping toddlers focused on the task goals were more predictive of toddler mastery motivation than a positive disposition or a providing a supportive atmosphere (i.e., secure base).

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When faced with a difficult task, some will persist, while others will simply give up. Part of the difference between these two types of individuals is the level of intrinsic motivation that each possess. The development of motivation begins early in life (Matas, Arend, & Sroufe, 1978). Upon facing a novel situation or task, children appear to approach it with either a mastery-orientation or a helpless-orientation (Diener & Dweck, 1978). Those who approach with a mastery orientation are more likely to persist at the task even in the face of failure, while helpless children are more likely to give up and believe they are incapable of the task. A bias towards a mastery or helpless orientation has been found in children as young as 2-years of age (Matas et al., 1978), and appears to grow more pronounced as the child ages (Sorich & Dweck, 1999).

Motivation is an important aspect of learning. Parents who were trained to foster mastery of motivation in their children had children who improved subsequent performances on a learning task (Ramey et al., 2000). Just as the presence of motivation in children from a young age can aid learning, the absence of it can hinder children. Children who have previously reacted to a task helplessly are more likely to fail at subsequent similar tasks (Diener & Dweck, 1978). Helpless orientations have been shown to have a profound affect on a child's academic achievement (Fincham, Hokoda, & Sanders, 1989), and academic achievement is a high predictor of high school dropout (Jimerson, Egeland, Sroufe, & Carlson, 2000). Yet, little is understood about how motivation orientation develops.

Given children as young as 2-years of age display biases toward these motivation orientations, individual differences in parent behaviors may be key in the

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development of motivation. In school-aged children, the type of verbal feedback (directed to a trait or effort) they receive influences motivation (e.g., Dweck, 2002); however, this does not appear to be the case in younger children (Zentall, 2009). Perhaps this is because young children do not yet understand the meaning of these words. This leads to the importance of studying other aspects of communication from parent to child, such as facial expression, tone of voice, and sensitivity during instruction.

Children as young as 10 weeks of age have been shown to be able to distinguish between happy, angry, and sad facial expressions shown by their mothers, and have changed their own affect in response (Haviland & Lelwica, 1987). In addition to mimicking facial expression, parental facial expressions can also be used by infants to determine how to feel about and therefore behave in a situation (i.e., social referencing). Through social referencing an infant uses parent's facial expressions to make appraisals of uncertain situations, such as the first meeting with a stranger (Campos, 1984), or the introduction of a toy designed to illicit fear in the child (Klennert, 1984). Thus, it is likely that parental facial affect may influence a toddler's interest in and persistence with a novel toy.

Verbal affect, or the tone of voice, a parent uses may also convey information to young children. For example, infant directed speech, using exaggerated intonation and drawn out words, has been shown to contain intonation differences that act as clear cues to the speaker's intent (Fernald, 1989). In a later study by Fernald (1995), 5-month old infants, were played audio clips of approval and disapproval statements in both infant-directed and adult-directed English, and also in a number of other languages, including nonsense English. Infants were more likely to smile during infant-directed approval, no

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matter the language, and to show negative affect during infant-directed disapproval, no matter the language. They did not seem to respond to adult-directed speech, whether it was giving approval or disapproval. These findings suggest that the tone present in infant-directed speech is very important in conveying information to infants, and can affect their emotional states.

A mother's presence as a supportive figure (i.e., supportive presence) may also lead to increased mastery. Freund (1990) found that 5-year-old children were more likely to perform well on a problem-solving task when learning in the presence of their mother as opposed to receiving retrospective corrective criticism from a female experimenter. A toddler's attachment, or the emotional bond, to the mother has also been shown to influence motivation. Specifically, toddlers with a positive (secure) attachment with their mother persist longer on problem-solving tasks than toddlers with a negative (insecure) attachment (Matas *et al.*, 1978).

A mother's quality of instruction may also be a factor in increasing a child's mastery of a task. Wood and Middleton (1975) found that a mother who was willing to be flexible in her teaching style of a task to her 3-4 year old, and to tailor her teaching methods based on her perception of her child's response to previous teaching methods was more likely to see her child perform well on the task after her instruction. Providing sensitivity to the child's cognitive and problem-solving skills and tailoring instruction to aid the child most effectively can help the child to achieve a sense of his own competence, fostering a mastery-orientation (Matas *et al.*, 1978).

Finally, a mother's overall support of and sensitivity to her child's development may also encourage mastery-orientation in the child. This refers to a mother's ability to

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be encouraging and sensitive to when her child is in need of help, while encouraging mastery by refraining from intrusive behavior. Kelley, Brownell, and Campbell (2000) examined the role of mother's intrusive control versus sensitivity on a toddler's motivation, giving 2 year olds and their mothers a difficult puzzle to work on. The researchers coded mother's teaching styles as one of two types of maternal control: Intrusive Control or Gentle Guidance. Intrusive control referred to behavior that intruded on the child's activity, while Gentle Guidance referred to behavior that attempted to assist the child in the task without explicitly controlling him. A year later, the children and their mothers returned and the children were administered a set of success and failure tests. The children's mastery was measured by the rating of the child's persistence on the task and a child's avoidance of the task. Children whose mothers used Gentle Guidance when teaching the task were less likely to avoid the challenge of the success and failure tests, and more likely to persist through the tests than children whose mothers used high levels of control in teaching the task. It appears that an encouragement of mastery through refraining from controlling the child's actions can lead to the child's increased persistence.

### **The Present Study**

The present study sought to find maternal predictors of toddler persistence on a difficult task. Maternal predictors included facial affect and verbal tone, a mother's supportive presence, a mother's quality of instruction, and a mother's overall support of development during engagement with a novel, difficult task.

The present study is unique from past research on mastery motivation with young children in several ways.. First, the present study separates maternal instruction from

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toddler persistence. Maternal variables were measured while the mother taught the new difficult toy to her toddler and then toddler persistence was measured while the mother ignored the child, removing the direct impact of maternal guidance on persistence.

Second, although several studies have shown that parent behaviors can influence motivation, it is possible that parents are responding to a particular aspect of the toddler's existing mastery behavior. Thus, by statistically controlling for the toddler's persistence with a similar toy with the father, I remove the possibility of the child's individual differences (e.g., temperament) that may affect motivation on a task.

I hypothesize that a mother's positive facial and verbal affect, a high level of supportive presence shown by the mother during teaching, a high level of quality of instruction during teaching, and a high overall maternal support of development rating while teaching will all predict higher levels of persistence in a toddler when left to engage with the toy alone.

## **Method**

The present study was part of a larger longitudinal study designed to investigate individual differences in emotion regulation over the child's first two years and factors that relate to emotion regulation. The larger study collected data when the child was 3, 5, 7, 12, 14, and 20 months of age.

### **Participants**

The initial sample consisted of 135 3-month-old infants and their parents, with low attrition rates (14%). This study uses data from the last visit for participants, 20-months, and their parents (n=94). Children were mostly Caucasian (85.9%). Families were mostly



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middle class as measured by total family income (45.2% made \$30,000-\$59,999 and 25.9% made \$60,000-\$89,999 annually). Education rates of parents showed the population to be mostly well-educated (58.6% of mothers and 45.9% of fathers had some college or had completed college), and the majority of parents were married and living together (84.4%).

### **Procedure**

Upon consenting at the beginning of the laboratory visit, one of the parents and their infant were shown into a small, carpeted room, decorated to be child-friendly. Toddlers and their parents participated in the Parent Ignore Toddler Situation. The Parent Ignore Toddler Situation (PITS) was developed for this study. In the PITS, the toddler sat in a high chair at a table perpendicular to the parent. Two novel toys were chosen for the parent and child to interact with together, however the toys were too difficult for the child to operate alone. The first toy was a tape player with microphones and the second toy was a slide projector with a remote.

The PITS is comprised of four phases, in which parents were instructed to (1) *Teach*: in which the parent taught the child to use the novel toy; (2) *Parent Ignore*: in which the parent stops interacting with the child, and begins to read a magazine; (3) *Resumption of Play*: in which the parent resumed interaction with the child and the toy; and (4) *Normative Soothing* time in which the parent could remove the child from their chair and interact as they normally would.

All sessions were recorded on video by two cameras, one aimed at the parent, and one at the child, for later coding. Afterwards, the second parent would then engage in the same assessment with their infant directly following the first parent. Parents were

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randomly chosen to participate first or second.

## Measures

### **Persistence.**

Persistence was coded when the toddler engaged in two behaviors simultaneously, active engagement and looking exclusively at the toy. Active engagement was defined as trying to operate the novel toy. Looking at the toy was defined as a toddler's visual attention being focused exclusively on the toy. Persistence was coded as the number of seconds that the child was looking at the toy and actively engaged with the toy out of the total number of seconds during the 90-second phase. Interrater reliability, calculated using Cohen's Kappas, was high for toddler engagement with mothers ( $\kappa = .90$ ) and with fathers ( $\kappa = .83$ ). Interrater reliability was also high for looking at the toy ( $\kappa = .95$  with mothers;  $\kappa = .93$  with fathers). This study utilizes the child's persistence scores obtained during the Ignore phase of PITS with both mother and father.

### **Maternal Facial Affect.**

Maternal facial affect was coded on a second-by-second basis during the 90 seconds of the Teach phase of the PITS. Facial affect was coded using a 4-point scale in either positive or negative direction with zero being neutral on both scales. The coding rubric for parental positive facial affect was (3) exaggerated smile, exaggerated silly face with positive expression, exaggerated surprised face with positive expression, (2) clear smile, lips closed or slightly open, silly face with positive expression, surprised face with positive expression, eyebrows up or down, (1) slight smile, silly face without positive expression, surprise without positive expression, (0) neutral expression. The coding

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rubric for parental negative facial affect was (3) large grimace, exaggerated, (2) frown, clear, but not exaggerated, (1) small frown, silly face with furrowed brow and perched lips, (0) neutral expression. The Interclass correlation(ICC) for interrater reliability was high (.92).

### **Maternal Verbal Affect.**

Maternal verbal affect was also coded on a second by second basis during the 90 seconds of the Teach phase. Like facial affect, verbal affect was coded using a 4-point scale in either positive or negative directions with a zero being neutral on both scales. The coding rubric for parental positive verbal affect was (3) highest level of child-directed speech (exaggerated intonation and drawn out words) intense laughing, exaggerated gasps, (2) clear child directed speech (positive intonation and drawn out words), chuckling or laughing, (1) ambiguous, slight child-directed speech, soft spoken, (0) neutral tone, talking as if to an adult. The coding rubric for parental negative verbal affect was (3) extremely harsh tone, yelling, (2) clear negative tone, but not yelling, (1) unhappy, somewhat ambiguous, sternness, (0) neutral tone, talking as if to an adult. Interrater reliability was high, measured with Interclass correlations ICC (.73).

### **Supportive Presence.**

Supportive presence was defined as the emotional support with which the mother helped the child have a positive and enjoyable learning experience. It involves the balance of encouragement of autonomous work through the provision of a secure base and enough involvement to ensure the child is assisted when needed. Major criteria and sub criteria of supportive presence were given a “yes”, “minimal”, or “no” rating. The mother’s overall supportive presence was then graded on a 7-point scale, with 7 being the

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best supportive presence, and 1 being the least. The major criteria for supportive presence were (1) Secure base: helping the child to feel comfortable with the task, and (2) Mother involvement: attentiveness to the child and task. A mother rated “yes” as a secure base remained calm and approached the task with enthusiasm. She encouraged autonomous work by the child, but remained close by to help when needed. She moved closer when the child was in need of help. A mother scoring “no” as a secure base may have been unable to help the child due to her own frustrations with the problem, passivity, or inability to understand her child’s skill level. She may have expected higher levels of work from her child than possible without providing encouragement. A mother scoring “yes” on mother involvement encouraged and supported the child, helping when needed. She helped the child to return to on-task behavior, if they were distracted, and shared the joy of a solution with the child. The mother who received a “no” score in mother involvement was disinterested and cold when interacting with her child. She did not respond to the child’s frustration. A mother could also receive a “no” if she was so passive and/or lethargic that she seemed to not have the energy to be involved. Maternal supportive presence was assessed during the Teach phase of PITS, with high interrater reliability ( $\kappa = .81$ ).

### **Quality of Assistance.**

The quality of assistance pertains to the skills and sensitivity with which the mother helps the child solve a problem, and maximizes the child’s chances of learning rules and concepts that are generalizable. Major criteria and sub criteria were given a “yes”, “minimal”, or “no” rating. The mother’s overall quality of assistance was then rated on a 7-point scale, with a 7 being the highest quality of assistance and a 1 being the

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lowest quality of assistance. The major criteria for quality of assistance were (1) Giving minimal assistance needed to keep the child working toward a solution without solving it for him/her, and (2) Helping the child see the relationships between actions that are required to solve the problem. A mother who received a “yes” rating on minimal assistance gave the child just enough information without providing information the child could have discovered if given less hints. A mother who received a “no” may have interfered with the child’s attempts to work independently. A mother who received a “yes” rating in helping the child to see relationships did not expect her child to make advanced inferences, but rather lead her child by providing motions and concepts needed to solve the task. She gave clear hints and was flexible to the child’s current place in solving a task. She allowed the child to explore the task, and perform the task at a pace comfortable to the child. She provided helpful and relevant hints. A mother who received a “no” may have provided no helpful assistance. Maternal quality of assistance was measured during the Teach phase of PITS, again, with high interrater reliability ( $\kappa = .77$ ).

### **Support of Development.**

Support of Development assessed a parent’s overall support and sensitivity to the child’s developmental and emotional needs. This measure was scored on a 5-point scale with 5 being the highest overall parent rating and a 1 being the lowest. A mother scoring high on this scale is calming and reassuring to the child. She encourages the child and intervenes when the child is in need of assistance. She strives to instill a sense of mastery in the child and allows the child to feel as if he solved the problem. A mother scoring low on this scale demonstrates detached or angry behavior that frustrates the child. She

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may be controlling, intrusive, and critical of the child's problem-solving skills. She could also be completely withdrawn and helpless in the situation (Sroufe). Maternal teaching rating was assessed during the Teach phase of PITS, with high interrater reliability ( $\kappa = .85$ ).

### **Results**

In order to assess the persistence of the child as a correlate of his mother's behavior, it was necessary to control for a child's individual differences that may affect a child's motivation. To do this, I controlled for the child's persistence with the father on a similar task. A partial correlation analysis was carried out to clarify the relationship between the persistence of toddlers and maternal facial and verbal affect, supportive presence, quality of assistance, and the support of development (see Table 1).

Controlling for the parent order and the child's persistence with his father, I found two statistically significant correlations. Mother's quality of assistance during instruction was found to correlate with the child's persistence on the task. Support of development also correlated with child's persistence. Mother affect (facial and verbal) and supportive presence were not found to be significantly correlated with the toddler persistence.

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Table 1. *Partial Correlation Coefficients (Controlling for Parent Order and Child's Persistence with Father)\* for Relations between Maternal Variables and Child's Persistence with mother.*

Maternal Variable	Child's Persistence with mother	
	Correlation Coefficients	p-value
Maternal Facial Affect	.057 (.023)	p=.823
Maternal Verbal Affect	-.072 (-.077)	p=.458
Maternal Supportive Presence	-.017 (.124)	p=.233
Maternal Quality of Assistance	.064 (.245)*	p=.017
Maternal Support	.032 (.206)*	p=.045

Note: Partial correlation coefficients in parentheses. \* $p < .05$

### Discussion

The purpose of this study was to examine the effects of maternal affect and sensitivity during instruction on toddler persistence during independent engagement with a novel, difficult toy, while controlling for general toddler persistence displayed across task. Five maternal variables were tested, facial affect, verbal affect, supportive presence, quality of assistance, and support of development. Two of the maternal variables tested were found to correlate with toddler's persistence, maternal quality of assistance, and maternal support. The variable of maternal quality of assistance measured the skills and sensitivity with which a mother helped her child to solve a problem, providing minimal assistance to encourage autonomy, while still helping the child to see relationships and make connections. This finding corresponds with previous research that has found a mother's willingness to be flexible and high-quality in their teaching styles to predict a young child's task success on problem solving tasks (Wood & Middleton,

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1975). Maternal support of development measured a mother's support to a child's emotional and developmental needs, striving to instill a sense of mastery in the child. An encouragement of mastery and sensitivity to developmental needs of the child is essential to the formation of feelings of competence, autonomy, and pride in a child, all predictors of mastery motivation (Matas et al., 1978).

The remaining three variables tested did not prove to predict a child's persistence on a task. Although children have been shown to respond to differences in their mother's facial affect, and to use these cues to decide how to respond to novel situations (Campos, 1984; Klinnert, 1984), this does not seem to affect a child's persistence. Mother verbal affect was also found to not correspond with a toddler's motivation on the task, despite evidence that it contains many cues to the mother's intentions that the child picks up on (Fernald, 1989). Finally, it does not seem to be enough for the mother to just function as a secure base for the child to explore from, as mother's supportive presence also did not predict toddler's motivation.

Perhaps the reason the presence of these three variables during teaching did not predict toddler motivation in independent play is that they do not directly encourage mastery in the toddler. Although positive facial and verbal affect and the presence of the mother as a secure base may provide comfort to the child when confronted with the novel toy, these variables do not directly help the child to learn and master the use of the toy as high quality of assistance and high support of and sensitivity to the child's development during teaching do.



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In conclusion, these results correspond with previous research in the area of the development of motivation in young children, as well as provide new information by removing direct maternal assistance during a task and toddler's individual differences as factors that may affect motivation. This research underscores the importance of the study of the development of motivation, an important aspect of learning. Through research into parental influences on its development, perhaps techniques to encourage early mastery can become more widely used, and target part of the problem causing low academic success and dropout rates. By encouraging autonomy and competence early in development and providing high quality instruction, it is possible many later problems with motivation could be avoided.

**References**

- Campos, J. (1984). A New Perspective on Emotions. *Child Abuse & Neglect*, 8, 147-156.
- Dweck, C. S. (2002). Messages that motivate: How praise molds students' beliefs motivation, and performance (in surprising ways). In J. Aronson (Ed.) *Improving Academic Achievement: Impact of Psychological Factors on Education*. (pp. 37- 60) New York , Academic Press.
- Diener, C. & Dweck, C. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social Psychology*, 36, 451-462.
- Fernald, A. (1989). Mother's speech to infants: is the melody the message? *Child Development*, 60,6, 1497-1510.
- Fernald, A. (1995). Approval and disapproval: infant responsiveness to vocal affect in familiar and unfamiliar languages. *Child Development*, 64, 3, 657-674.
- Fincham, F. D., Hokoda, A, & Sanders, R, (1989). Learned helplessness, test anxiety, and academic achievement: A longitudinal analysis. *Child Development*, 60, 138-145.
- Freund, L. S. (1990). Maternal regulation of children's problem-solving behavior and its impact on children's performance. *Child Development*, 61, 113-126.

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Haviland, J. M., & Lelwica, M. (1987). The induced affect response: 10-week-old infants' responses to three emotion expressions. *Developmental Psychology*, 23, 97-104.

Jimerson, S.R., Carlson, E., Rotert, M., Egeland, B., & Sroufe, L.A. (1997). A prospective, longitudinal study of the correlates and consequences of early grade retention. *Journal of School Psychology*, 35, 3-25.

Kelley, S. A., Brownell, C. A. and Campbell, S. B. (2000), Mastery motivation and self evaluative affect in toddlers: longitudinal relations with maternal behavior. *Child Development*, 71,1061-1071

Klennert, M. (1984). The Regulation of Infant Behavior by Maternal Facial Expression. *Infant Behavior and Development*, 7, 447-465.

Matas, L., Arend, R. A., Sroufe, L. A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. *Child Development*, 49, 547-556.

Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S.L. (2000). Persistent effects of early childhood education on high-risk children and their mothers. *Applied Developmental Science*, 4, 2-14.

Sorich, L. A. & Dweck, C. S. (1999) Mastery-oriented thinking. In C. R. Snyder (Ed.) *Coping: The psychology of what works*. (pp. 232-251). New York: Oxford University Press.

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Zentall, S. R. (2009). *Early parent-child relationship and type of parental praise and criticism as predictors of toddler motivation on an unsolvable task*. (Doctoral dissertation). University of Notre Dame, Notre Dame, IN.